UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,424	03/25/2004	Ryoichi Kaku	119245	6949

25944 7590 08/07/2007		

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER
PARK, EDWARD

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
08/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.　　2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-20* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-20* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>25 March 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☒ All　b) ☐ Some *　c) ☐ None of:

　　　1. ☒ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
　Paper No(s)/Mail Date <u>3/25/04, 4/2/07</u>.

4) ☐ Interview Summary (PTO-413)
　Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Specification

1.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent
Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV,
reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive
> material." In this context, "functional descriptive material" consists of data structures and computer programs
> which impart functionality when employed as a computer component. (The definition of "data structure" is "a
> physical or logical relationship among data elements, designed to support specific data manipulation functions."
> The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional
> descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement
> of data.

> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and
> functionally interrelated to the medium and will be statutory in most cases since use of technology permits the
> function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d
> 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases
> computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to
> computer having a specific data structure stored in memory held statutory product-by-process claim) with
> Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element
> which defines structural and functional interrelationships between the computer program and the rest of the
> computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32
> F.3d at 1583-84, 32 USPQ2d at 1035.

3.   **Claims 10-18** are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter as follows. Claims 10-18 define a program for generating an

image embodying functional descriptive material. However, the claim does not define a

computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When

functional descriptive material is recorded on some computer-readable medium it becomes

structurally and functionally interrelated to the medium and will be statutory in most cases since

use of technology permits the function of the descriptive material to be realized" – Guidelines

Annex IV). That is, the scope of the presently claimed program for generating an image can

range from paper on which the program is written, to a program simply contemplated and

memorized by a person. The examiner suggests amending the claim to embody the program on

"computer-readable medium" or equivalent in order to make the claim statutory. Any

amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   **Claims 1 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Mukoyama et al (US 6,831,659 B1) in view of Bothcy (C Magazine; "Speed-up Techniques and

thinking Routine for 3D games found Source Code of a 3D game "Doom"").

Regarding **claim 1**, Mukoyama teaches an image generation method for generating an

image comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the

object data storage section (Mukoyama: figure 14);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27); and

the method further comprising:

disposing in the object space a model object including a plurality of part objects each of

which has a projection shape, each of the part objects having a projecting portion formed on a

display surface on which an image is drawn (Mukoyama: figure 15); and rotating each of the part

objects based on rotational information of the virtual camera so that the display surface of each

of the part objects is directed toward the virtual camera (Mukoyama: figure 16). Mukoyama

does not teach generating an image viewed form the virtual camera in the object space while

performing hidden surface removal processing.

Bothcy teaches generating an image viewed form the virtual camera in the object space

while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in

the art to modify the Mukoyama reference to utilize hidden surface removal processing as

suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Regarding **claim 10**, Mukoyama teaches a program for generating an image, the program

causing a computer to implement processing ("provide a recording medium capable of providing

a program wherewith the image processing of the present invention is possible"; Mukoyama: col.

2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 1.

6.   **Claims 2-9, 11-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mukoyama et al (US 6,831,659 B1) with Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom"") as applied to claim 1, and further in view of Nakagawa (US 2002/0135603 A1).

Regarding **claim 2**, Mukoyama with Bothcy combination discloses all elements as mentioned above in claim 1. Mukoyama with Bothcy combination does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; and mapping the Z texture stored in the texture storage section on each of the objects, the method further comprising: mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit.

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); and mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]), the method further comprising: mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit (Nakagawa: figure 3).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to "[reduce] processing time" (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 3**, Mukoyama teaches an image generation method for generating an image comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27); and the method further comprising:

disposing a model object having a plurality of part objects in the object space (Mukoyama: figure 15);

rotating each of the part objects based on rotational information of the virtual camera so that a display surface of each of the part objects on which an image is drawn is directed toward the virtual camera (Mukoyama: figure 16). Mukoyama does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing; and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects.

Bothcy teaches generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); and mapping the Z texture

stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]), and

mapping on each of the part objects the Z texture for forming a virtual projection shape on the

display surface of the part objects (Nakagawa: figure 3).

It would have been obvious at the time the invention was made to one of ordinary skill in

the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by

Nakagawa, to "[reduce] processing time" (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 4**, Mukoyama teaches disposing a column-shaped part object included

in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical

direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a

central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the

part objects about the Y-axis so that the display surface of each of the part objects is directed

toward the virtual camera when the virtual camera rotates about the Y-axis while being directed

toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 5**, Mukoyama teaches disposing a column-shaped part object included

in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical

direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a

central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the

part objects about the Y-axis so that the display surface of each of the part objects is directed

toward the virtual camera when the virtual camera rotates about the Y-axis while being directed

toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 6**, Mukoyama teaches disposing a column-shaped part object included ·

in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical

direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 7**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis which is perpendicular to the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 8**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 9**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama:

figure 14) and disposing the first and second part objects so as to overlap each other in a view

image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when

the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 11**, Mukoyama teaches a program for generating an image, the program

causing a computer to implement processing ("provide a recording medium capable of providing

a program wherewith the image processing of the present invention is possible"; Mukoyama: col.

2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as

claim 2.

Regarding **claim 12**, Mukoyama teaches a program for generating an image, the program

causing a computer to implement processing ("provide a recording medium capable of providing

a program wherewith the image processing of the present invention is possible"; Mukoyama: col.

2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as

claim 3.

Regarding **claim 13**, Mukoyama teaches a program for generating an image, the program

causing a computer to implement processing ("provide a recording medium capable of providing

a program wherewith the image processing of the present invention is possible"; Mukoyama: col.

2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as

claim 4.

Regarding **claim 14**, Mukoyama teaches a program for generating an image, the program

causing a computer to implement processing ("provide a recording medium capable of providing

a program wherewith the image processing of the present invention is possible"; Mukoyama: col.

2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 5.

Regarding **claim 15**, Mukoyama teaches a program for generating an image, the program causing a computer to implement processing ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 6.

Regarding **claim 16**, Mukoyama teaches a program for generating an image, the program causing a computer to implement processing ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 7.

Regarding **claim 17**, Mukoyama teaches a program for generating an image, the program causing a computer to implement processing ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as · claim 8.

Regarding **claim 18**, Mukoyama teaches a program for generating an image, the program causing a computer to implement processing ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 9.

Regarding **claim 19**, Mukoyama teaches a computer-readable information storage medium storing the program ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50) as defined in claim 10.

Regarding **claim 20**, Mukoyama teaches a computer-readable information storage medium storing the program ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50) as defined in claim 12.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Park whose telephone number is (571) 270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edward Park
Examiner
Art Unit 2624

/Edward Park/

/Brian P. Werner/
Supervisory Patent Examiner (SPE), Art Unit 2624